REMARKS

In the Final Office Action dated February 9, 2005, claims 1-22 are pending. Claims 1, 13, and 22 are independent claims from which all other claims depend therefrom. Claims 1-14 and 22 are herein amended. Claims 23-25 are newly added.

Note that claims 1, 13-14, and 22 have not been amended for patentability reasons, but rather for further clarification reasons. Claim 22 has simply been amended to include the limitations of claim 5, which have previously been examined. Claims 2-12 have been amended to correct a dependency error. The amendments herein do not present new issues for consideration. Thus, Applicant respectfully requests that the amendments be entered because it will place the application in a better condition for appeal, if necessary.

Figure 2 of the drawings stands objected to because it lacks a –Prior Art– legend. Applicant herewith submits a corrected set of drawings containing an amended Figure 2. Figure 2 is amended to provide a block representing an integrated electronic system housing 40. The integrated electronic system housing 40 is not old, as stated in the previous Response of November 22, 2004, and is one of the novel aspects of the current application. Applicant submits that such a housing is not taught or suggested in the prior art, see further remarks below. The integrated electronic system housing 40 is now shown in amended Figure 2 as containing the gradient coil controller 28 and the sequence controller 24, as stated in paragraphs [0023] and [0024] of the present application. Of course, the integrated electronic system housing 40 may contain other system support electronics, also as stated in paragraphs [0023] and [0024] of the present application.

Claims 1-6, 8-17, and 19-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Srinivasan et al. (U.S. Patent No. 5,543,711 A) in view of Burl et al. (U.S. Patent No. 6,593,744 B2).

Claims 1 and 13 have similar limitations and are therefore described together. Claims 1 and 13 recite an integrated electronic system housing and magnet structure and an imaging system. Claim 1 includes the limitations of a magnet structure, a housing, and a RF shield. The magnet structure includes a superconducting magnet and an RF coil assembly. The housing is attached to and external from the magnet structure. The housing contains imaging system support electronics and does not contain the RF coil assembly. The RF shield is coupled to the housing and prevents RF interference between the support electronics and the RF coil assembly. Claim 13 recites the limitations of claim 1 except the RF shield prevents RF interference, generated by the magnet structure, between the magnetic field and the support electronics. Claim 13 also requires that the housing be separate from the magnet structure.

Srinivasan discloses an MRI system. The MRI system includes a primary magnet coil 10, a gradient coil assembly 30, and a RF coil assembly 40, which are located within a magnet structure or vacuum dewar 20. The vacuum dewar 20 is not attached to and is separate from a computer control and reconstruction module 58. The reconstruction module 58 includes electronics devices 60, 68, 70, 72, and 74. Processing circuits 62, which include two A/D converters 64 and a summer 66, are coupled to a birdcage coil 42 that is disposed within the vacuum dewar 20.

The Office Action states that Srinivasan discloses an integrated electronic system housing that is attached to and external from a magnet structure, and refers to the vacuum dewar 20 for such disclosure. Although the vacuum dewar 20 contains the processing circuits 62, it also contains the RF coil assembly 40. This is unlike the claimed structure and system of claims 1 and 13, which specifically recite that the housings thereof do not contain a RF coil assembly.

The Office Action admittedly states that Srinivasan fails to disclose shielding for preventing radio frequency interference between imaging system support electronics and a RF coil assembly. Applicant agrees and further submits

that Srinivasan fails to disclose a shield coupled to a housing that contains imaging system support electronics and does not contain a RF coil assembly. The Office Action, however, states that Burl discloses shielding for preventing radio frequency interference between imaging system support electronics and a RF coil assembly and refers to col. 7, lines 37-53 for such disclosure.

Burl, like Srinivasan, discloses an MRI system. The MRI system includes a primary magnet coil 12, a gradient coil assembly, and a RF coil or RF coil assembly 26, 34, which are located within a magnet structure or vacuum dewar, see Figure 1 of Burl. The vacuum dewar is not attached to and is separate from computer control, reconstruction, and electronic devices 38-56. An RF cable trap 70 is disposed within the vacuum dewar and is coupled to the RF coil 26, like the processing circuits 62 of Srinivasan. The RF cable trap 70 includes an inductor 116 that has a RF shield 122.

Srinivasan, like Burl, fails to teach or suggest the limitations of a housing that contains imaging system support electronics and does not contain a RF coil assembly, the housing attached to and external from a magnet structure. The inductor 116, which the Office Action refers to as imaging system support electronics, is contained within the vacuum dewar along with the RF coil assembly.

Claim 22 recites the limitations of a first housing that has imaging system support electronics with one or more of a radio frequency amplifier, a gradient amplifier, a timing device, an oscillator, a radio frequency transmitter, a gradient coil controller, and a sequence controller. A second housing is integrally formed with the first housing and contains a magnet structure, which is separate from the first housing. The magnet structure generates a magnetic field and includes a superconducting magnet, a gradient coil assembly, and a radio frequency receiver coil. A radio frequency shield is coupled within the first housing, encases the support electronics, and prevents radio frequency interference between the support electronics and the radio frequency receiver coil.

As stated above, both Srinivasan and Burl fail to teach or suggest the limitations of a housing that contains imaging system support electronics and does not contain a RF coil assembly, the housing attached to and external from a magnet structure. Thus, both Srinivasan and Burl fail to teach or suggest the first housing of claim 22. Therefore, Applicant submits that Srinivasan and Burl also fail to teach or suggest: A.) such a housing coupled to a radio frequency shield; B.) such a housing having a radio frequency shield therein; and C.) such a housing coupled to a radio frequency shield and encasing one or more of a radio frequency amplifier, a gradient amplifier, a timing device, an oscillator, a radio frequency transmitter, a gradient coil controller, and a sequence controller. Srinivasan simply discloses A/D converters 64 and a summer 66 contained within a vacuum dewar 20, which contains a RF coil assembly 40. The A/D converters 64 and a summer 66 are not contained within a RF shield. Burl discloses an RF cable trap 70 that is also contained within a vacuum dewar, which contains an RF coil assembly. Although Burl discloses an inductor 116 contained within an RF shield 22, an inductor is not one of the elements claimed, and the RF shield is contained within the vacuum dewar. Note that the radio frequency shield claimed is within the first housing, which does not contain an RF coil assembly.

Referring to MPEP 706.02(j) and 2143, to establish a *prima facie* case of obviousness the prior art reference(s) must teach or suggest all the claim limitations, see *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Thus, Applicant submits that Srinivasan and Burl fail to teach or suggest each and every limitation of claims 1, 13, and 22, therefore, claims 1, 13, and 22 are novel, nonobvious, and are in a condition for allowance. Also, since claims 2-6, 8-12, 14-17, 19-21, and 23-25 depend from claims 1 and 13, respectively, they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

With respect to claims 3-4 and 15-16, the Office Action states that Srinivasan discloses imaging system support electronics encased within a radio frequency shield. The Office Action refers to the processing circuits 62, the RF shield 38, and Figure 1 of Srinivasan. In close review of Figure 1 one can see that the RF shield 38, which is the only RF shield disclosed within Srinivasan, does not encase the processing circuits 62. The processing circuits 62 are positioned within the RF shield 38, but are not encased by the RF shield 38. The term "encase" means to enclose in or as in if a case, see *Merriam-Webster's Third New International Dictionary*. In other words, the term "encase" means to close in on all sides. The RF shield 38 of Srinivasan is open ended. Thus, claims 3-4 and 15-16 are further novel and nonobvious for the above-stated reasons.

With respect to claim 5, see above arguments for claim 22.

With respect to claims 6 and 17, the Office Action further states that the toroidal helium vessel 16, the shield 18, and the vacuum 20 of Srinivasan are considered layers of housings. Applicant submits that this is irrelevant since none of the claims recite layers of housings. Claims 6 and 17 require that the radio frequency shield of claims 1 and 13 include at least one layer. Clearly layers of a radio frequency shield are different than layers of housings and especially the disclosure of housings within housings, as disclosed by Srinivasan. Thus, claims 6 and 17 are further novel and nonobvious for the above-stated reasons.

With respect to claim 14, the Office Action states that Srinivasan discloses a second housing that contains a magnet structure, wherein the first housing and the second housing are integrally formed as a single housing. The Office action refers to the vessel 16, the shields 18, and the vacuum dewar 20 of Srinivasan. Applicant submits that the vessel 16, the shields 18, and the vacuum dewar 20 are not integrally formed as a single housing. The vessel 16, the shields 18, and the vacuum dewar 20 are separate devices. The vessel 16 is completely disposed within the shields 18, which are completely disposed within the vacuum dewar

20. The vessel 16, the shields 18, and the vacuum dewar 20 do not share common walls nor are they directly coupled to each other. Also, note that claim 14 has been amended to require that the first housing and the second housing be integrally formed as a single unit. Clearly, the vessel 16, the shields 18, and the vacuum dewar 20 are separate units that are separately formed. Thus, claim 14 is further novel and nonobvious for the above-stated reasons.

Referring to MPEP 2142, to establish a *prima facie* case of obviousness, there must be some suggestion or motivation to combine and modify the references as required to arrive at the present invention, see *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Applicant submits that there is no such suggestion or motivation provided in either Srinivasan or Burl and that no such motivation or suggestion has been provided. Srinivasan discloses a vacuum dewar 20 that is not attached to and is separate from a computer control and reconstruction module 58. Likewise, Burl also discloses a vacuum dewar that is not attached to and is separate from computer control, reconstruction, and electronic devices 38-56. The use of the systems of Srinivasan and Burl require that the magnet structure be in a different room than the electronics, such as the associated reconstruction devices. The claimed invention provides the housing and the RF shielding to allow the magnet structure and the electronics to coexist with the same room. There is no suggestion in either Srinivasan or Burl for such coexistence and the systems thereof do not allow or provide for the same. Thus, it would not have been obvious to combine and modify the teachings of Srinivasan or Burl to arrive at the claimed inventions and to do so would be improper use of hindsight reasoning in view of the present application. Besides, the combination thereof does not allow one to arrive at the claimed inventions.

Claims 7 and 18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Srinivasan and Burl in view of Ladebeck (USPN 5,994,903 A).

Applicant submits that since claims 7 and 18 depend from claims 1 and 13, respectively, they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons as put forth above.

In light of the amendments and remarks, Applicant submits that all of the objections and rejections are now overcome. The Applicant has added no new matter to the application by these amendments. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, the Examiner is respectfully requested to call the undersigned attorney.

Respectfully submitted,

ARTZ & ARTZ P.C.

Jeffrey J. Chapp, Reg. No. 50,579
28333 Telegraph Road, Suite 250
Southfield, MI 48034
(248) 223-9500

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